CLAIMS

I claim:

1. A method of processing video comprising:

    acquiring a video stream;

    dividing said video stream into a plurality of sub-sections;

    determining a probability of whether a transition to a separate sub-section is present

    at a sub-section of said video stream; and

    embedding said probability of said transition into said sub-section of said video

    stream.

2. The method of Claim 1 wherein said determining said probability is performed by a classifier.

3. The method of Claim 2 wherein said classifier is provided a fixed-sized portion of said sub-section.

4. The method of Claim 1 further comprising outputting a location and duration of said transition in said video stream.

5. The method of Claim 1 further comprising a pre-filter component and a post-filter component.

6. The method of Claim 1 wherein said transition is a dissolve, a fade, a wipe, a iris, a funnel, a mosaic, a roll, a door, a push, a peel, a rotate, or a special effect.

7. A method of processing video comprising:

   acquiring a set of positive and negative training patterns;

   generating a set of classifiers with said set of patterns;

   recursively training said set of classifiers with said negative training patterns;

   validating said set of classifiers; and

   selecting one of said classifiers.

8. The method of Claim 7 wherein said set of positive training patterns includes a set of transition video streams, and said set of negative training patterns includes a set of transition free video streams.

9. The method of Claim 7 wherein said validating said set of classifiers comprises validating said set of classifiers against a set of positive and negative validation patterns, said set of positive validation patterns includes a set of transition video streams, said set of negative validation patterns includes a set of transition free video streams.

10. The method of Claim 7 wherein said classifier comprises a real valued feed-forward neural network.

11. A method of processing video comprising:

   acquiring at random a video stream comprising at least two separate shots, said separate shots comprising a uninterrupted subset of said video stream;

   identifying a sub-section of said separate shots as a first shot transition and a second shot transition, a duration of said shot transitions determined by a transition probability distribution; and

generating a transition sequence comprising said first shot transition and said second shot transition of said duration.

12.   The method of Claim 11 wherein said transition probability distribution represents a fixed duration.

13.   The method of Claim 11 wherein said transition sequence is a dissolve, a fade, a wipe, a iris, a funnel, a mosaic, a roll, a door, a push, a peel, a rotate, or a special effect.

14.   A video processing apparatus comprising:
a training component, said training component including a transition synthesizer, said transition synthesizer to generate a set of patterns to generate and train an effect detector; and
a detection component coupled to said training component, said detection component coupled to said effect detector to detect an effect.

15.   The apparatus of claim 14 wherein said training component comprises a real-valued feed-forward neural network.

16.   The apparatus of claim 14 wherein said set of patterns comprises:
a synthetic training pattern; and
a synthetic validation pattern.

17.   The apparatus of claim 14 wherein said set of patterns comprises:
a real training pattern; and
a real validation pattern.

18. The apparatus of claim 14 wherein said effect is a dissolve, a fade, a wipe, a iris, a funnel, a mosaic, a roll, a door, a push, a peel, a rotate, or a special effect.

19. A machine-readable medium that provides instructions, which when executed by a set of one or more processors, cause said set of processors to perform operations comprising:

deriving at least one frame-based video stream, each of said frame-based video streams forms a time series stream;

re-scaling said time series stream;

generating a time series stream pyramid from said re-scaled time series stream;

inputting into a classifier a fixed-sized portion of said time series;

receiving from said classifier a transition probability, said transition probability determining the probability of whether a transition effect exist within said fixed-sized portion;

integrating said time series and said transition probability into a transition frame-based probability; and

outputting a location and a duration of said transition effect.

20. The machine-readable medium of Claim 19 further comprising a pre-filter component and a post-filter component.

21. The machine-readable medium of Claim 19 wherein said time series pyramid includes time series formed from at least one sampling rate to be used by said classifier.

22. The machine-readable medium of Claim 19 wherein said receiving said transition probability results in said transition probability generated at various scales.

23. The machine-readable medium of Claim 19 wherein said transition effect is a dissolve, a fade, a wipe, a iris, a funnel, a mosaic, a roll, a door, a push, a peel, a rotate, or a special effect.

24. A machine-readable medium that provides instructions, which when executed by a set of one or more processors, cause said set of processors to perform operations comprising:

acquiring a plurality of positive training and validation patterns, said plurality of positive training patterns including a plurality of transition video streams, said plurality of positive validation patterns including a plurality of transition video streams;

acquiring a plurality of negative training and validation patterns, said plurality of negative training patterns including a plurality of transition free video streams, said plurality of negative validation patterns including a plurality of transition free video streams;

generating a set of classifiers using said plurality of positive and negative training patterns to train said set of classifiers;

generating an initial pattern set including a subset of said plurality of training patterns, inserting into said initial pattern set a falsely classified portion of said negative training patterns to train said refined set of classifiers;

validating said set of classifiers against said validation set of negative and positive patterns; and

selecting one of said classifiers.

25. The machine-readable medium of claim 24 wherein said classifier comprises a real-valued feed-forward neural network.

26. A machine-readable medium that provides instructions, which when executed by a set of one or more processors, cause said set of processors to perform operations comprising:

acquiring of a video stream and a probability distribution, said video stream including a shot description;

determining a duration of a transition sequence according to said probability distribution;

selecting a first shot and a second shot, both shots are selected at random; and

generating said video transition sequence of said duration, said video transition sequence including a transition effect.

27. The machine-readable medium of claim 26 wherein said transition effect includes a portion of said first shot and a portion of said second shot.

28. The machine-readable medium of claim 26 wherein said video transition sequence includes a portion of said first shot before said transition effect, said transition effect, and a portion of said second shot after said transition effect.

29. The machine-readable medium of claim 26 wherein said transition effect is a dissolve, a fade, a wipe, a iris, a funnel, a mosaic, a roll, a door, a push, a peel, a rotate, or a special effect.